

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE
MONITORING AND REPORTING PROGRAM NO. R9-2003-0179
NPDES PERMIT NO. CA0107492**

**FOR THE
PADRE DAM MUNICIPAL WATER DISTRICT
PADRE DAM WATER RECYCLING FACILITY
DISCHARGE TO
SYCAMORE CREEK AND THE SAN DIEGO RIVER
SAN DIEGO COUNTY**

A. PURPOSE

This monitoring program is intended to:

1. Document the short-term and long-term effects of the discharge on water quality and the beneficial uses of the receiving waters.
2. Assess treatment plant performance and compliance with the NPDES permit terms and conditions.

B. MONITORING PROVISIONS

1. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in this MRP and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance.
2. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.
3. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 5 percent from true discharge rates throughout the range of expected discharge volumes. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices. The discharger shall maintain calibration records including a written statement signed by a registered professional engineer certifying that all flow measurement devices have been calibrated and will reliably achieve the accuracy required.

4. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Executive Officer.
5. Monitoring must be conducted according to United States Environmental Protection Agency test procedures approved under Title 40, Code of Federal Regulations (CFR), Part 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants Under the Clean Water Act" as amended, unless other test procedures have been specified in this MRP or approved by the Executive Officer.
6. The discharger shall have, and implement, an acceptable written Quality Assurance /Quality Control (QA/QC) plan for field and laboratory analyses. An annual report shall be submitted by March 1 of each year which summarizes the QA/QC activities for the previous year. Duplicate chemical analyses must be conducted on a minimum of ten percent of the samples or at least one sample per month, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples. When requested by USEPA or the Executive Officer, the discharger will participate in the NPDES discharge monitoring report QA/QC performance study. The discharger should have a success rate equal or greater than 80 percent.
7. The discharger shall implement this monitoring and reporting program on the first day of the month following the effective date of Order No. 2003-0179. The Monitoring and Reporting Program of Order No. 98-60 shall remain in effect between the adoption date of Order No. 2003-0179 and the implementation of this MRP.
8. The discharger shall submit all information necessary to determine compliance with effluent limitations (e.g. if the permit contains a daily maximum and monthly average for a particular constituent, the discharger shall report the daily maximum and monthly average for that constituent, as defined in the reporting requirements below, and in the same units as the permit limit). For any effluent limitation, compliance shall be determined using sufficient sampling and analysis and appropriate statistical methods to evaluate multiple samples.
9. The discharger shall report all instances of noncompliance at the time monitoring reports are submitted.
10. Monitoring results must be reported in a format approved by the Executive Officer.
11. All reports submitted in response to this MRP shall comply with the signatory requirements of 40 CFR 122.22.
12. If the discharger monitors any pollutants more frequently than required by this MRP, using test procedures approved under 40 CFR, Part 136, or as specified in this MRP, the results of this monitoring shall be included in the calculation and reporting of the

data submitted in the discharger's monitoring report. The increased frequency of monitoring shall also be reported.

13. The discharger shall report with each sample result the reported Minimum Level (ML) and the laboratory's current Method Detection Limit (MDL). For each numeric effluent limitation, the discharger shall select one or more Minimum Levels (and their associated analytical methods) from Appendix 4 of the State Water Resources Control Board *Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Implementation Policy). The "reported" Minimum Level is the Minimum Level (and its associated analytical method) chosen by the discharger for reporting and compliance determination from Appendix 4 of the Implementation Policy. The discharger must select from all Minimum Levels from Appendix 4 of the Implementation Policy that are below the effluent limitation. If the effluent limitation is lower than all the Minimum Levels in Appendix 4 of the Implementation Policy, then the discharger must select the lowest Minimum Level.
14. Minimum Levels in Appendix 4 of the Implementation Policy represent the lowest quantifiable concentration in a sample based on the proper application of method-specific analytical procedures and the absence of matrix interferences. Minimum Levels also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method-specific factors. Common analytical practices may require different treatment of the sample relative to the calibration standard. Some examples of these practices are given in Section 2.4.2 of the Implementation Policy. Other factors may be applied to the Minimum Level depending on the specific sample preparation steps employed. For example, the treatment typically applied when there are matrix effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied during the computation of the reporting limit. Application of such factors will alter the reported Minimum Level.
15. The discharger shall instruct its laboratories to establish calibration standards so that the Minimum Level (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve. In accordance with the Implementation Policy, the discharger's laboratory may employ a calibration standard lower than the Minimum Level in Appendix 4 of the Implementation Policy.
16. In addition to paper copies, the discharger shall submit all monitoring results in an electronic (tab delimited or spreadsheet) format (preferably on compact disc) with the annual report submittals.
17. The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this MRP,

and records of all data used to complete the application for this MRP. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Executive Officer or the United States Environmental Protection Agency. Records of monitoring information shall include:

- a. The date, exact place, and time of sampling or measurements;
 - b. The individuals who performed the sampling or measurements;
 - c. The date(s) analyses were performed;
 - d. The laboratory and individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of all such analyses.
18. A grab sample is an individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes.
19. A composite sample is defined as a combination of at least 100 milliliters collected at periodic intervals during the operating hours of a facility over a 24-hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.
20. The 12-month average shall be the moving arithmetic mean of all samples collected over any 12-month period.
21. The annual average shall be the mean of all samples collected in one calendar year.
22. The 30-day average shall be the moving arithmetic mean of daily concentrations over any 30-day period.
23. The monthly average shall be the mean of all samples collected in a calendar month.
24. The 7-day average shall be the moving arithmetic mean of daily concentrations over any 7-day period.
25. The weekly average shall be the mean of all samples collected in a calendar week, Sunday through Saturday.
26. The daily maximum shall be the maximum result of all samples collected in a calendar day.
27. The instantaneous maximum, or "maximum at any time" effluent limitation shall apply to each sample independently (i.e. all results shall be compared to the limit).

28. If only one sample is collected during the time period associated with the effluent limitations (e.g., 30-day average or 6-month median), the single measurement shall be used to determine compliance with the effluent limitation for the entire time period.
29. When determining compliance based on a single sample, with a single effluent limitation which applies to a group of chemicals concentrations of individual members of the group may be considered to be zero if the analytical response for individual chemicals falls below the MDL for that parameter.
30. The mass emission rate (MER), in pounds per day, shall be obtained from the following calculation for any calendar day:

$$\text{mass emission rate (lb/day)} = 8.34 \times Q \times C$$

in which Q and C are the flow rate in MGD and the constituent concentration in mg/l, respectively, and 8.34 is a conversion factor with units of [lb/MGD] / [mg/l]. If a composite sample is taken, then C is the concentration measured in the composite sample and Q is the average flow rate occurring during the period over which the samples are composited.

31. Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in Order R9-2003-0179 or this monitoring and reporting program.
32. For all bacterial analyses, sample dilutions should be performed so the range of values extends from 2 to 16,000 MPN (most probable number). The detection methods used for each analysis shall be reported with the results of the analysis. Detection methods used for coliforms (total and fecal) shall be those presented in the most recent edition of Standard Methods for the Examination of Water and Wastewater or any improved method determined by the Executive Officer to be appropriate. Detection methods used for escherichia coli shall be those presented in USEPA publication USEPA 600/4-85/076, Test Methods for Escherichia coli and Enterococci in Water By Membrane Filter Procedure or any improved method determined by the Executive Officer to be appropriate.
33. The geometric mean used for determining compliance with bacterial standards is calculated with the following equation:
$$\text{Geometric Mean} = (C_1 \times C_2 \times \dots \times C_n)^{1/n}$$

where n is the number of days samples were collected during the period and C is the concentration of bacteria (MPN/100 ml) found on each day of sampling.
34. Compliance with the daily average operating filter effluent turbidity limit of 2 Nephelometric Turbidity Units (NTU) shall be determined using the levels of recorded turbidity levels at a minimum of four-hour intervals over a 24-hour period.

Compliance with the turbidity standard of not exceeding 5 NTU more than 5 percent of the time over a 24-hour period shall be determined using the levels of recorded turbidity taken at intervals of no more than 1.2-hours over a 24-hour period. Should the continuous turbidity meter and/or recorder fail, grab sampling at a minimum frequency of 1.2 hours may be substituted until the turbidity meter and/or recorder is fixed.

35. By March 1 of each year, the discharger shall submit an annual report to the Regional Board and USEPA Region 9 that contains tabular and graphical summaries of the influent, effluent, and receiving water monitoring data obtained during the previous year. The discharger shall discuss the compliance record and corrective actions taken or which may be needed to bring the discharge into full compliance with the requirements of Order No. R9-2003-0179 and this monitoring and reporting program. A discussion and interpretation of the receiving water data collected during the previous year shall also be provided.
36. Monitoring results shall be reported at intervals and in a manner specified in Order No. R9-2003-0179 and/or this monitoring and reporting program. Monitoring reports shall be submitted to the Regional Board and to USEPA Region 9, as appropriate, according to the following schedule:

Monitoring Frequency	Reporting Period	Report Due
Continuous, Daily, Weekly, Monthly	All	First day of the second month after the month of sampling (e.g., January sampling: due March 1)
Quarterly	January – March April – June July – September October – December	May 1 August 1 November 1 February 1
Semiannually	January – June July – December	September 1 March 1
Annually	January – December	March 1

37. Revisions to this MRP may be made by the Regional Board at any time during the term of Order No. 2003-0179, and may include a reduction or increase in the number of parameters to be monitored, locations monitored, the frequency of monitoring, or the number and size of samples collected.

C. CHRONIC WHOLE EFFLUENT TOXICITY

The discharger shall conduct quarterly freshwater chronic toxicity tests on 24-hour composite effluent samples taken at the discharge from Lake No. 1 and grab samples taken from receiving water sample locations specified in this MRP. Whenever possible, a split of each effluent toxicity sample collected will be used for the chemical and physical analyses required in this MRP.

1. Test Species and Methods

- a. The discharger shall conduct short-term tests with the cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test); the fathead minnow, *Pimephales promelas* (larval survival and growth test); and the green alga, *Selenastrum capricornutum* (growth test) for the first three suites of tests. After this screening period, monitoring shall be conducted using the most sensitive species.
- b. Every year, the discharger shall re-screen once with the three species listed above and continue to monitor with the most sensitive species. Re-screening shall be conducted at a different time of year from the previous year's re-screening.
- c. The presence of chronic toxicity shall be estimated as specified in EPA's methods (USEPA 600/4-91-002).

2. Toxicity Limits

- a. Chronic toxicity measures a sublethal effect (e.g., reduced growth, reproduction) to experimental test organisms exposed to an effluent or ambient waters compared to that of the control organisms. Chronic toxicity limits are specified in Discharge Specifications of Order No. 2003-0179.
- b. Results shall be reported in TUc, where $TUc = 100/NOEC$. The no observed effect concentration (NOEC) is the highest concentration of toxicant to which organisms are exposed in a chronic test that causes no observable adverse effect on the test organisms (i.e., the highest concentration of toxicant to which the values for the observed responses are not statistically significantly different from the controls).

3. Quality Assurance

- a. A series of at least five dilutions and a control will be tested. The series shall include the following concentrations: 12.5, 25, 50, 75, and 100 percent effluent.
- b. If organisms are not cultured in-house, concurrent testing with a reference toxicant shall be conducted. Where organisms are cultured in-house, monthly reference toxicant testing is sufficient. Reference toxicant tests also shall be conducted using the same test conditions as the effluent toxicity tests (e.g., same test duration, etc).
- c. If either the reference toxicant test or effluent test does not meet all test acceptability criteria (TAC) as specified in the manual, then the discharger must re-sample and re-test within 14 days or as soon as possible.

- d. The reference toxicant and effluent tests must meet the upper and lower bounds on test sensitivity as determined by calculating the percent minimum significant difference (PMSD) for each test result. The test sensitivity bound is specified for each test method (see variability document EPA/833-R-00-003, Table 3-6). There are five possible outcomes based on the PMSD result:
 1. **Unqualified Pass**—The test's PMSD is within bounds and there is no significant difference between the means for the control and the 100 percent treatment. The regulatory authority would conclude that there *is no toxicity at 100 percent effluent*.
 2. **Unqualified Fail**—The test's PMSD is larger than the lower bound (but not greater than the upper bound) in Table 3-6 and there is a significant difference between the means for the control and the 100 percent treatment. The regulatory authority would conclude that there *is toxicity at 100 percent effluent*.
 3. **Lacks Test Sensitivity**—The test's PMSD exceeds the upper bound in Table 3-6 and there is no significant difference between the means for the control and the 100 percent treatment. The test is considered invalid. An effluent sample must be collected and another toxicity test must be conducted. The discharger must re-sample and retest within fourteen (14) days or as soon as possible.
 4. **Lacks Test Sensitivity**—The test's PMSD exceeds the upper bound in Table 3-6 and there is a significant difference between the means for the control and the 100 percent treatment. The test is considered valid. The regulatory authority will conclude that there *is toxicity at 100 percent effluent*.
 5. **Very Small but Significant Difference**—The relative difference (see Section 6.4.2, below) between the means for the control and the 100 percent treatment is smaller than the lower bound in Table 3-6 and this difference is statistically significant. The test is acceptable. The NOEC is determined as described in Sections 6.4.2 and 6.4.3 (below).
 - e. Control and dilution water should be receiving water or laboratory water, as appropriate, as described in the manual. If the dilution water used is different from the culture water, a second control using culture water shall be used.
4. Preparing the Initial Investigation of the TRE Workplan

The discharger shall submit to the Regional Board a copy of the discharger's Toxicity Reduction Evaluation (TRE) workplan (1-2 pages) within 90 days of the effective date of this permit. This plan shall describe the steps the discharger intends to follow if toxicity is detected, and should include, at least the following items:

- a. A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.
- b. A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices.
- c. If a toxicity identification evaluation (TIE) is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor).

5. Accelerated Testing

- a. If the initial investigation indicates the source of toxicity (for instance, a temporary plant upset), then only one additional test is necessary. If toxicity is identified in this test, then Section 6 shall apply.
- b. If chronic toxicity is identified in the additional test, then the discharger shall conduct six more tests, approximately every two weeks, over a twelve-week period. Testing shall commence within two weeks of receipt of the sample results of the exceedance of the WET monitoring trigger.
- c. If none of the six tests indicate toxicity, then the discharger may return to the normal testing frequency.

6. Toxicity Reduction Evaluation (TRE) and Toxicity Identification Evaluation (TIE)

- a. If chronic toxicity is detected in any of the six additional tests, then, in accordance with the facility's initial investigation according to the TRE workplan, the discharger shall initiate a TRE within fifteen (15) days of the exceedance to reduce the cause(s) of toxicity. At a minimum, the discharger shall use EPA manual EPA/833B-99/002 as guidance. The discharger will expeditiously develop a more detailed TRE workplan, which includes:
 - (1) Further actions to investigate and identify the cause of toxicity
 - (2) Actions the discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity
 - (3) A schedule for these actions
- b. The discharger may initiate a TIE as part of the TRE process to identify the cause(s) of toxicity. The discharger shall use the EPA acute and chronic manuals, EPA/600/6-91/005F (Phase I)/EPA/600/R-96-054 (Phase II), and EPA-600/R-92/081 (Phase III) as guidance.

D. INFLUENT MONITORING

Influent monitoring is required to determine the effectiveness of a pretreatment program and assess treatment plant performance. The sampling station shall be located upstream of any in-plant return flows and where a representative sample of the influent to the treatment plant can be obtained. The date and time of sampling shall be reported with the analytical values determined.

The following shall constitute the influent monitoring program:

Influent Monitoring

Parameter	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
flowrate ¹	mgd	recorder/totalizer	continuous	monthly
pH	pH units	grab	2 times/day	monthly
BOD (5-day, 20° C)	mg/l	24-hr composite	3 x per calendar week	monthly
total suspended solids	mg/l	24-hr composite	3 x per calendar week	monthly
nitrogen (series) ²	mg/l	24-hour composite	monthly	monthly
phosphorous (series) ³	mg/l	24-hour composite	monthly	monthly

Notes:

1. Both the daily average and daily maximum shall be reported for influent flowrate.
2. nitrogen (series) = total nitrogen, organic nitrogen, nitrate, nitrite, ammonia
3. phosphorous (series) = total phosphorous and orthophosphate phosphorous

E. EFFLUENT MONITORING

Effluent monitoring is required to determine compliance with the permit conditions and to identify operational problems and improve plant's performance. Effluent monitoring also provides information on wastewater characteristics and flows for use in interpreting water quality and biological data.

Sample stations are Station A - a point after dechlorination and Station B - the discharge point where water from Lake 1 overflows to Sycamore Creek. The date and time of sampling shall be reported with the analytical values determined.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the discharger shall monitor and record data for all of the parameters listed in the effluent monitoring schedule, after which the frequencies of analyses listed in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

In conformance with federal regulations (40 CFR 122.45(c)), analyses to determine compliance with the effluent concentration limitations for heavy metals shall be

conducted using the total recoverable method. For these constituents, if the discharger satisfactorily demonstrates to the Executive Officer an acid soluble/total recoverable method relationship, determination of compliance will be based on a comparison of the adjusted total recoverable method results to permit limits.

The following tables shall constitute the effluent monitoring program.

1. Station A – After dechlorination and prior to the discharge to Lake 7

Effluent Monitoring – Station A

Parameter	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
flowrate ¹	mgd	recorder/totalizer	continuous	monthly
specific conductance ¹	µmhos/cm	recorder	continuous	monthly
pH ¹	pH units	recorder	continuous	monthly
turbidity ²	NTU	recorder	continuous	monthly
total/fecal coliform ³	MPN/100ml	grab	daily	monthly
escherichia coli ³	CFU/100ml	grab	weekly	monthly
BOD (5-day, 20° C)	mg/l	24-hr composite	3 x per calendar week	monthly
COD	mg/l	24-hr composite	3 x per calendar week	monthly
total suspended solids	mg/l	24-hr composite	3 x per calendar week	monthly
oil and grease	mg/l	grab	monthly	monthly
nitrogen (series) ⁴	mg/l	24-hour composite	monthly	monthly
phosphorous (series) ⁵	mg/l	24-hour composite	monthly	monthly
total dissolved solids	mg/l	24-hour composite	monthly	monthly
percent sodium	%	24-hr composite	monthly	monthly
color	units	24-hr composite	monthly	monthly
total organic carbon	mg/l	24-hr composite	quarterly	quarterly
total hardness	mg/l	24-hr composite	quarterly	quarterly
chloride	mg/l	24-hr composite	quarterly	quarterly
sulfate	mg/l	24-hr composite	quarterly	quarterly
iron	mg/l	24-hr composite	quarterly	quarterly
manganese	mg/l	24-hr composite	quarterly	quarterly
MBAS	mg/l	24-hr composite	quarterly	quarterly
boron	mg/l	24-hr composite	quarterly	quarterly
fluoride	mg/l	24-hr composite	quarterly	quarterly
Bis (2-Ethylhexyl) Pthalate	µg/l	24-hour composite	semi-annually	semi-annually
priority pollutants ⁶	µg/l	24-hour composite/grab ⁷	annually	annually
lake 7 fish tissue ⁸	ppb	grab	annually	annually

Parameter	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
<p>Notes:</p> <ol style="list-style-type: none"> Both the daily average and daily maximum shall be reported. Specific conductance and pH shall only be reported as the daily averages, from midnight to midnight. Effluent turbidity analyses should be conducted using a continuous monitoring and recording turbidimeter. The discharger shall report monthly results of four-hour turbidity readings, average effluent turbidity (24-hours), 95 percentile effluent turbidity (24-hours), and the daily maximum turbidity (daily being defined as the 24-hour period from 12 am to 12 am). Continuous turbidity monitoring must also be provided prior to filtration to ensure adequate process control, and automatic actuate coagulant feed when the turbidity of the secondary treated effluent is greater than 10 NTU. May be measured prior to dechlorination Nitrogen (series) = total nitrogen, organic nitrogen, nitrate, nitrite, ammonia Phosphorous (series) = total phosphorous and orthophosphate phosphorous Priority pollutants list as defined in 40 CFR 131.38. Type of sample as specified in 40 CFR 136 Appendix A. Tissue of fish in Lake 7 shall be collected and analyzed according to the latest criteria of Toxic Substances Monitoring Program. 				

2. Station B – Discharge from Lake 1 into Sycamore Creek

Effluent Monitoring – Station B

Parameter	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
flowrate ¹	mgd	recorder/totalizer	continuous	monthly
chlorine residual ²	µg/l	grab	daily	monthly
total/fecal coliform	MPN/100ml	grab	weekly	monthly
escherichia coli	CFU/100ml	grab	weekly	monthly
nitrogen (series) ³	mg/l	24-hour composite	monthly	monthly
phosphorous (series) ⁴	mg/l	24-hour composite	monthly	monthly
chronic toxicity	TUc	24-hour composite	quarterly	quarterly
<p>Notes:</p> <ol style="list-style-type: none"> Both the daily average and daily maximum shall be reported. For chlorine residual, the discharger shall report the daily average, maximum, and minimum values. Nitrogen (series) = total nitrogen, organic nitrogen, nitrate, nitrite, ammonia Phosphorous (series) = total phosphorous and orthophosphate phosphorous 				

F. RECEIVING WATER MONITORING

1. Core Monitoring

- To determine compliance with water quality standards, the receiving water quality monitoring program must document conditions in the vicinity of the receiving water discharge points, at reference stations, and at areas beyond the immediate vicinity of the discharge points where discharge impacts might reasonably be expected. Monitoring must reflect conditions during all critical environmental periods.

- b. The following shall constitute the core receiving water monitoring stations:

Station Number	Location
1	San Diego River at Carlton Hills Boulevard in Santee (upstream reference station)
2	Forrester Creek 50 feet upstream of the confluence with the San Diego River (upstream reference station)
3	Sycamore Creek at overflow from first pond within Carton Oaks Golf Course
4	Sycamore Creek upstream of the confluence with the San Diego River just prior to stream exit from Carlton Oaks Golf Course
5	San Diego River at Mast Boulevard
6	San Diego River at the pond just downstream of Old Mission Dam
7	San Diego River at San Diego Mission ponds just south of Friars Road bridge

- c. Monitoring surveys conducted to meet receiving water monitoring requirements of this MRP shall include, as a minimum, the following information:
- (1) A description of climatic and receiving water characteristics at the time of sampling [e.g., observations of wind (direction and speed); weather (cloudy, sunny, or rainy, etc.); observations of water color or discoloration (percent algal cover at surface and bottom); oil and grease; turbidity; odor, and materials of sewage origin in the water or on the riverbank(s); time of sampling; air temperature ($^{\circ}\text{C}$); water temperature ($^{\circ}\text{C}$), etc.].
 - (2) A description of sampling stations, including characteristics unique to each station [e.g., GPS coordinates for station location, photodocumentation, sediment characteristics, rocks, river flow (contiguous or terminated), and estuary mouth conditions (i.e. open or closed due to sand deposition) etc.].
 - (3) A description of the sample collection and preservation procedures used in the survey and a description of the specific method used for laboratory analysis.
 - (4) An annual in-depth discussion of the survey results. The discussion shall compare data from the reference station(s) with data from the stations located in the area of the discharge. All tabulations and computations shall be explained.
- d. Whenever possible, samples shall be collected on the same day that these constituents are collected at the discharge from Lake 1. Sample methods, preservation, and analyses, when not specified, shall be approved by the Executive Officer. The following shall constitute the receiving water monitoring program:

Core Receiving Water Monitoring

Constituent	Units	Sample Type	Station #	Monitoring Frequency	Reporting Frequency
flowrate	CFS	Cross-sect. velocity/area	1-7	monthly	monthly
specific conductance	µmhos/ cm	grab	1-2, 4-7	monthly	monthly
pH	units	grab	1-2, 4-7	monthly	monthly
nitrogen (series) ¹	mg/l	grab	1-2, 4-7	monthly	monthly
phosphorous (series) ²	mg/l	grab	1-2, 4-7	monthly	monthly
sediment phosphorous (series) ¹	mg/kg	grab	1-2, 4-7	monthly	monthly
total dissolved solids	mg/l	grab	1-2, 4-7	monthly	monthly
turbidity	NTU	grab	1-2, 4-7	monthly	monthly
total/fecal coliform	MPN/100ml	grab	1-2, 4-7	monthly	monthly
escherichia coli	CFU/100ml	grab	1-2, 4-7	monthly	monthly
dissolved oxygen ³	mg/l	grab	1-2, 4-7	monthly	monthly
temperature	° C	grab	1-2, 4-7	monthly	monthly
chlorophyll-a	mg/m ³	grab	1-2, 4-7	monthly	monthly
total organic carbon	mg/l	grab	1, 6	quarterly	quarterly
total hardness	mg/l	grab	1,6	quarterly	quarterly
chloride	mg/l	grab	1,6	quarterly	quarterly
sulfate	mg/l	grab	1,6	quarterly	quarterly
iron	mg/l	grab	1,6	quarterly	quarterly
manganese	mg/l	grab	1,6	quarterly	quarterly
MBAS	mg/l	grab	1,6	quarterly	quarterly
boron	mg/l	grab	1,6	quarterly	quarterly
priority pollutants ⁴	µg/l	grab	1-2,6	annually	annually
chronic toxicity	TUc	grab	1,6	quarterly	quarterly
benthic macroinvertebrates ⁵	IBI	-	1,6	quarterly	quarterly
periphyton ⁶	IBI	-	1,6	quarterly	quarterly
fish tissue ⁷	ppb	grab	7	annually	annually

Notes:

1. Nitrogen (series) = total nitrogen, organic nitrogen, nitrate, nitrite, ammonia
2. Phosphorous (series) = total phosphorous and orthophosphate phosphorous
3. If only one measurement is collected for dissolved oxygen, it shall be determined no later than 8:00 A.M. For each measurement reported, the discharger shall also report the percent saturation (calculated based on temperature).
4. Priority pollutants list as defined in 40 CFR 131.38.
5. Benthic macroinvertebrate analysis shall be conducted in May, August, October, and December of each year, using the California Stream Bioassessment Procedure (CSBP), professional level point source protocol, and reported using the Index of Biotic Integrity (IBI), as well as each of the individual endpoints. The sampling locations shall be within ½ mile upstream or downstream of the chemical sampling location, at a reach with five riffles or runs. If necessary, reaches with 3-4 riffles will be acceptable. The site shall be selected at the time of sampling, using the sampler's discretion. If a location is dry at the time of sampling the sampler shall attempt to conduct sampling whenever possible for that quarter.
6. Periphyton analysis shall be conducted in May, August, October, and December of each year using the USEPA Rapid Bioassessment Protocols for Use in Wadeable Stream and River – Periphyton, Benthic Macroinvertebrates, and Fish, Second Edition (July 1999) and reported using the Index of Biotic Integrity.
7. Tissue of fish in Lake 7 shall be collected and analyzed according to the latest criteria of Toxic Substances Monitoring Program.

2. Regional Watershed Monitoring

The discharger shall participate and coordinate with state and local agencies and other dischargers in the San Diego Region in development and implementation of a regional watershed monitoring program for the San Diego River Watershed as directed by the Executive Officer. The intent of a regional watershed monitoring program is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled resources of the region. During a coordinated watershed sampling effort, the discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of discharges to the watershed.

3. Strategic Process Studies

Special studies are intended to be short-term and designed to address specific research or management issues that are not addressed by the routine core monitoring program. The discharger shall implement special studies as directed by the Executive Officer.

I, John H. Robertus, Executive Officer of the San Diego Regional Water Quality Control Board, do hereby certify the foregoing is a full, true, and correct copy of a Monitoring and Reporting Program adopted by the California Regional Water Quality Control Board, San Diego Region, on September 10, 2003.

TENTATIVE
JOHN H. ROBERTUS
Executive Officer